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REPORT ON

INTERSTATE UNIFORM SERVICES CORPORATION

JUNE 3, 1983



ERAS

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DRAFT

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1. INTRODUCTION

Interstate Uniform Services Corporation ("IUS") provides garment rental services to commercial, industrial and governmental customers. These services consist primarily of delivering cleaned, IUS-owned uniforms and protective clothing (i.e., lab coats) to customers, and picking-up the soiled garments for cleaning and re-delivery. A major portion of the garments are manufactured in Puerto Rico; IUS also provides specialized garment decontamination services to the nuclear industry and distributes certain chemical supplies and laundry equipment.

IUS has its principal executive offices in Woburn, MA, on 15 Olympia Avenue. Mr. Aldo Croatti, President, founded IUS in 1935, and incorporated the company in 1950. In fiscal year ending in August, 1982, IUS had revenues of \$64.2 million dollars, and net income of \$4.7 million dollars. IUS employs about 2,000 people in several facilities located primarily in the eastern United States. Mr. Croatti has initiated proceedings to make a public stock offering; at the end of the offering, Mr. Croatti and his family will own approximately 72.2% of the stock.

IUS is seeking to obtain Environmental Impairment Liability insurance ("EIL") coverage for its operations at 15 Olympia Ave., in Woburn, MA. As a condition of granting such insurance, underwriters have required IUS to retain Environmental Risk Assessment Service (USA), Ltd. ("ERAS") to perform a survey of the operations and to prepare a report summarizing the risks of environmental liability associated with these activities.

The risk rating given by ERAS in this and similar reports is based on the following factors:

- A) The nature and quantities of the materials handled, in particular the potential for damage to health (of human, animal, or plant life) or property if releases to the environment were to occur.
- B) The degree of control exercised in materials processing,

handling, and storage.

- C) The adequacy of controls on the treatment of waste streams released to the environment.
- D) The amount of management attention given to matters of environmental concern.
- E) The location of the insured's operations relative to possible damage targets.

The evaluation is largely qualitative and is given on a verbal scale from very high to very low risks.

2. DISCLAIMER

The material that follows is furnished pursuant to an express agreement that the ERAS study and report are made for the benefit of both IUS and the potential insurers and that ERAS is free to inform the potential insurers of any information relevant to the evaluation of the potential risk coming to its attention in the course of the survey or preparation for it. It is further understood and agreed that ERAS accepts no liability to the potential insured, insurers, reinsurers, or others for any losses sustained by IUS as a result of any denial of any insurance based on the survey or report.

Factual information has been obtained from IUS's personnel and has been assumed to be correct and complete by ERAS. A draft of this report has been reviewed by IUS.

3. RISK ASSESSMENT

The operation of garment and product distribution facilities, taken as a composite class, represents a risk of environmental impairment that is much lower (i.e., less hazardous) than average, compared with all other commercial and industrial activities. Within this class of activities, IUS's present operations represent a risk of environmental impairment that is lower (i.e., less hazardous) than average, compared with other similar operations. However, IUS's past use of tetrachloroethylene, resulting in its possible implication in a local groundwater contamination controversy, make this site an above average risk.

IUS' current operations at the Woburn site do not include laun-

dry, dry cleaning or tank storage operations. However, they have in the past. The U.S. EPA has been seeking to determine the source or sources of organic solvents contaminating Woburn's groundwater including two of its drinking water wells. On May 10, 1983, because IUS' past operations made use of tetrachloroethylene, EPA issued an Administrative Order describing elevated levels of tetrachloroethylene found in a monitoring well located 300 feet west of the IUS site, and in municipal drinking water wells G & H and directed IUS to initiate a study of nearby groundwater and to report on its use and disposal of solvents. ERAS, upon inspecting the site and from discussions with plant personnel, believes that IUS is probably not responsible for the levels of tetrachloroethylene observed in monitoring Well No. 6 or in the town water supply wells.

However, the Town of Woburn has been found to have an increased incidence of certain cancers (specifically kidney cancer and childhood leukemia), and is the location of two sites listed on EPA's Proposed Superfund Priorities List, as well as the contaminated water supply wells G and H. As a result, the population is extremely sensitive to the environmental problems which exist in Woburn.

ERAS expresses a high degree of concern about possible groundwater clean-up costs, but a lesser degree of concern with respect to possible claims of property damage or personal injuries, that may result from allegations of IUS' contribution of tetrachloroethylene to existing groundwater contamination.

Public health studies have shown that Woburn has higher than normal rates of some cancers and childhood leukemia. The most recent, (Telles, November 17, 1981) concludes that the statistical evidence suggests that the excess cancer and leukemia are caused by factors other than wells G and H.

4. OPERATIONS

The IUS executive offices in Woburn, MA occupy 57,500 square feet of space at which, in addition to administrative activities, uniforms and garments are packaged for distribution. Current operations do not include dry cleaning or solvent distribution.

The Town of Woburn is located approximately 12 miles north of Boston. IUS is located near the junction of Interstate 93 and Route 128. The surrounding land use is a mixture of light industrial and residential. To the immediate west of IUS is an electronics company; to the south, across Olympia Street is residential housing. To the southeast, about 1,200 feet distant, lies a food wrapping equipment division of W.R. Grace, and to the north lies automobile and tire sales companies. Town water supply wells G and H, which were closed in May, 1979, are located 1/4 - 1/2 mile southwest of the IUS. IUS's property is almost completely paved with asphalt.

As noted above, current operations at IUS headquarters include those of a routine office nature, distribution of garments received from manufacturing operations in Puerto Rico, and distribution of cleaning supplies such as bleach, filter material used in dry cleaning machines, etc. The company also has a small show room for demonstrating dry cleaning machines.

IUS's past operations at this site include dry cleaning and laundry operations between 1966-1969 and distribution and storage of tetrachloroethylene from 1977-1982.

On May 19, 1983, EPA issued an Administrative Order pursuant to Section 3013 of RCRA requiring IUS to produce a plan for the monitoring, testing, analysis and reporting of groundwater data on its property and to report on its solvent-related activities. A copy of the order is attached as Appendix A to this report.

The order recites EPA's concern over solvents in Woburn's drinking water wells G and H and their possible health effects. It notes (incorrectly) that EPA's FIT report identifies the source of the tetrachloroethylene in wells G and H as coming from "approximately where ...(IUS)... is located" and assumes the high concentrations in monitoring Well 6 result from discharge from IUS's property. It also reports, incorrectly, that IUS's former tetrachloroethylene tank was located out of doors and asserts that solvent from the tank "may" have spilled causing the contamination in wells G and H. On the basis of these facts, it calls for IUS to perform an extensive study program.

The Town of Woburn uses groundwater as a supply of drinking water. The locations of wells G and H, relative to IUS's building, are found in Figure 1. The wells were closed in May, 1979 when it was determined that the water contained elevated levels of halogenated organic chemicals. Well G operated intermittently between 1964-1979; Well H operated between July, 1967 to December, 1967, and then intermittently between August, 1974 until 1979. The Town of Woburn replaced the water from wells G and H with city water drawn from the Metropolitan District Commission (MDC)'s mains. ERAS was not able to determine the additional costs of this substitution which was apparently borne by the Town of Woburn. The EPA then initiated an investigation of chlorinated solvent contamination of Woburn's groundwater. The results of this study appear in a report (called the 'FIT report'), dated March 8, 1982. As shown in Figure 1, tetrachloroethylene was detected in a monitoring well (Well #6) located about 300 feet west of IUS, at a level of 240 ppb. Wells G and H, respectively, had levels of this solvent of 36 and 41 ppb.

ERAS's survey focussed on IUS's past waste management practices and history, the dry cleaning operation, and tank storage. Before IUS occupied the site, the site was undeveloped land. The land was bought in 2 pieces. On the first piece, the land was paved and a section of the building, as it now stands, was constructed. In 1966, the second portion was bought, paved, and the laundry facilities were added. The entire lot was paved before the time that laundry operations began. The adjacent lot to the west, on which Well No. 6 is located was still undeveloped land at that time.

The laundry operations which occurred between 1966-1969 provided an 'executive type' service (i.e., white shirts). The company bought a small laundry in Worcester, MA and moved it to Woburn. It consisted of a number of washing machines and 1 or 2 small dry cleaning units which could handle 25-35 pounds of clothing per load. About 2 loads were dry cleaned per day. The tetrachloroethylene solvent was continuously passed through a diatomaceous earth filter until the solvent was too dirty. About 1-2 times per week, the solvent was distilled. Solvent trapped in the filter material was partially driven off into the

KEY

- A. AFA - Warehouse
- B. Backson Distributing Co. - Food distribution
- C. Allied Van Lines
- D. Mohren Mall - Commercial
- E. Arlwood, Inc. - Wood/Metal doors, hardware
- F. Brodie, Inc. - Industrial trucks, tractors
- G. Brodie, Inc. - Industrial trucks, tractors
- H. Post Office
- I. Bradlee's - Commercial
- J. Celotex Corporation - Warehouse
- K. Economics Lab, Inc. - Distributor of soap and cleaning compounds
- L. ADAP/Kamco. - Commercial, auto parts
- M. Waterbed Warehouse - Commercial
- N. Cherrette - Commercial, art supplies
- O. Mohren Foreign Motors
- P. Hogan Tire Company - Tire distributor
- Q. Bliss marine - Boating equipment
- R. Wurlbert Datsun - Automobile sales and repair
- s. Cummings Industrial Centers - Offices
- T. Northern Research and Engineering Corporation
- U. Continental Metal Products - Hospital equipment
- V. Cummings Industrial Centers - Offices
- W. Cummings Industrial Centers - Offices
- X. Interstate Industrial Uniform Rental
- Y. Metro Siding and Roofing
- Z. W. R. Grace - Food wrapping equipment
- AA. Remingway Transportation, Inc. - General commodities trucking
- BB. Cummings Industrial Centers - Offices
- CC. Cummings Industrial Centers - Offices
- DD. Cummings Industrial Centers - Offices
- EE. Cummings Industrial Centers - Offices
- FF. McKesson and Robbins Drug Company
- GC. 99 Restaurant
- HH. Koola Inn
- II. New England Plastics - Plastics manufacturing
- JJ. Mirra Construction Company, Inc.
- KK. Independent Tallow Company

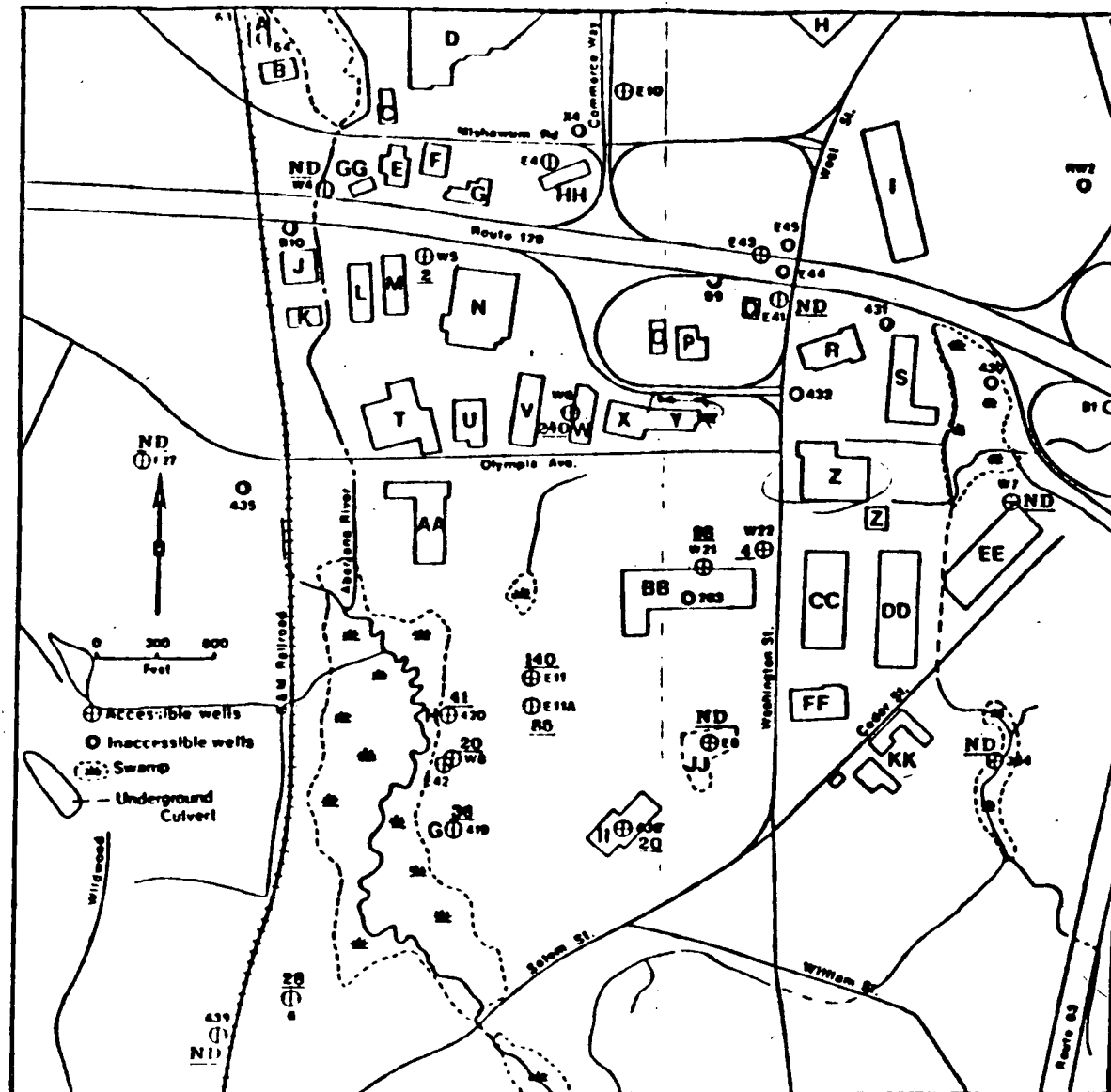


FIGURE DETECTED LEVELS OF TETRACHLOROETHYLENE (ppb)

distillation unit by heating. The remaining still bottoms consisted of a diatomaceous earth cake containing about 20% by weight tetrachloroethylene. Their cake is described as a solid non-flowing waste. According to the past production manager (now retired), Mr. Barnaby, who was contacted by Mr. Croatti, this cake material generated about 1 five gallon pail per week of waste. A present employee engaged in demonstrating dry-cleaning equipment (without knowledge of the environmental issue) was asked to estimate weekly waste volume for 1-2 loads a day and confirmed the one pail estimate. The waste was either put in the trash dumpster, which was unloaded by a commercial hauler, or put into drums which were trucked to the municipal dump. Mr. Barnaby assured Mr. Croatti that this waste material was not dumped on IUS's property or the surrounding property.

Since the dry-cleaning operation was small, make-up solvent is believed to have been bought in 1 or 2 drum quantities per order. No tank was on-site at that time. No other solvent usage occurred at the facility. There is no knowledge or record of any solvent spills during the period of the dry-cleaning operation. All washing machines drained to wash-troughs which discharged to the sewer system. Any solvent spills from the dry-cleaning equipment would have also drained to the troughs.

Between 1977-1982, IUS had on-site a 5,000 gallon tetrachloroethylene storage tank. The tank was stored aboveground, inside the building and sat on two saddles. The Administrative Order incorrectly states that the tank was located outside. All piping to and from the tank was elevated and visible. IUS stored tetrachloroethylene for distribution to customers, and used the Woburn tank for excess storage capacity when prices were low. The tank was moved to an IUS facility in Stratford, CT in January or February of 1983. For the two years prior to that, the tank was filled about once per month, and was filled for the last time in Woburn in March, 1982.

The tank was loaded and unloaded using the same inlet and a reversible pump. The solvent was unloaded from the tank into either small tanks mounted on delivery trucks, which also carried dry goods related to laundry operations, or into tank trucks. The small tanks

were filled using something similar to a gasoline nozzle. The hose coupling was located on the outside of the building. Because the solvent in question dissolves asphalt, any spills outside the building would leave small saucer-like depressions in the parking lot surface. Only four of these, a few inches in diameter, are visible beneath the former hose coupling.

While the tank was loaded, workmen would 'stick' the tank to determine its remaining capacity. The tank was designed with a relief valve such that any overflows would occur inside the building. There are no floor drains in the portion of the building where the tank was located. In late 1979, the tank overflowed; it is estimated that 100-150 gallons spilled onto the concrete floor. Mr. Croatti indicated to the surveyors the areal extent of the spill, which was completely confined within a single large room. The spill was mopped up with rags. The rags were sent to be dry-cleaned in Nashua, NH so that the solvent could be recovered in the cleaning machine.

The surveyors inspected the building and outside area in the company of IUS personnel. The activity areas within the building, such as the uniform packaging room, the uniform storage room, and the storage area for dry-cleaning related items (bleach, filter material) were extremely clean, neat, and well organized. Housekeeping, within and outside the plant, is exemplary.

The lot on the outside slopes upward from west to east. A retaining wall on the west side of the lot has replaced what used to be a small embankment. The slope has been filled to level the lot in this location. On the east side, a small triangular patch of IUS's property is unpaved. The land at this point slopes somewhat steeply upward from the parking lot.

Any spills of drums of solvent from the loading dock on the east side would flow into one of two stormwater drains located in the front parking lot. These drain into swales which ultimately feed the Aberjona River. The paving in front of the truck loading dock where tetrachloroethylene was delivered is recessed and equipped with a drain. It is believed that any spills in this area would enter the recess drain or the parking lot drain for the adjacent paved area.

Four documents merit discussion in this report as they relate to the problem of environmental problems throughout the Town of Woburn. One is EPA's FIT report, already identified.

This report examines the geology and hydrogeology of one square mile area in Woburn to determine the areal extent of contaminants found in municipal supply wells G and H. Thirty-five wells were sampled; in addition, the FIT report examines the area's topography, groundwater flow directions, and bedrock geology. In evaluating the information, the report concludes that the source area for the tetrachloroethylene contamination observed in Well No. 6 (located 300 ft. to the west of IUS) lies to the west of Well No. 6 (or, less probably, to the north or northeast), and that contamination is migrating through bedrock fractures.

The other three reports investigate the possible associations of environmental hazards with the increased incidences of kidney cancer and childhood leukemia in Woburn.

The first of these was a study issued by the Massachusetts Department of Public Health on December 21, 1979, Kotelchuch & Parker, "Woburn Health Data Analysis". It concluded that Woburn's cancer death rate is higher than should be expected, that childhood leukemia deaths were elevated 1969-1973 but not 1974-1978. It concluded that the elevated levels could not be attributed to any single environmental factor on the basis of available evidence. It called for more research on these issues and for longer term statistical studies.

The second report, "Cancer in Woburn", September 16, 1981 considerably more detailed, was prepared by the U.S. Public Health Service, Center for Disease Control ("CDC") in Atlanta, Georgia. It based its study on reports of cancer and leukemia cases rather than on deaths as the other studies do.

It concluded that childhood leukemia was significantly higher than expected for the period 1969-1979, 12 cases as opposed to 5.3 expected. For kidney cancer 1969-1978, the results were 30 cases observed as contrasted with 19.4 expected (see Table 1). It points out that wells G and H may be relevant to the leukemia rate but that none of the contaminants found in G and H are known to cause leukemia

TABLE 1

CHRONIC DISEASES DIVISION

Cases Observed in Woburn, 1969-1979

<u>Cancer</u>	<u>Observed No. of Cases</u>	<u>Expected No. of Cases</u>	<u>Ration Observed/ Expected</u>
Childhood Leukemia (Ages <1-14)	12	5.3	2.3
Kidney Cancer	30	19.4	1.5

although several, including tetrachloroethane, have caused tumors in experimental animals, and the contamination in wells, therefore, may be significant. It concludes "The hypothesis that the increase in leukemia incidence was associated with environmental hazards, and specifically with drinking water supplies, is neither supported nor refuted by the study findings".

It recommended study of data from earlier time periods to attempt to ascertain childhood leukemia mortality and incidence in Woburn before wells G and H came on line.

The third report (Telles, "Cancer Mortality in Woburn: A Three Decade Study (1949-1978)") was issued by the Massachusetts Department of Public Health on November 17, 1981. In response to the CDC suggestion it explored cancer deaths before opening of wells G and H. It concluded that the rise in childhood leukemia deaths began during the period 1959-1963, before the wells opened. Because of a two to five year latency for the diseases, any effect from the wells should not have been anticipated until 1969-1973 when, in fact, the rate was lower than expected, although it rose again in 1974-1978 (see Table 2). The report also pointed out that because of the 15 to 30 year latency period for kidney cancer, the high rate observed during the 1970's must be attributable to a factor introduced before 1950, not wells G and H.

IUS has hired Environmental Research and Technology to respond to EPA's Administrative Order. While ERT has not yet formulated its approach, its initial plans are to work with existing groundwater monitoring data and model the groundwater regime in Woburn. It also intends to examine IUS's past history of waste management practices and operations. ERT will monitor the groundwater between Well No. 6 and the IUS building, only if it has been unsuccessful in absolving IUS's of the observed contamination by any other means.

The Federal EPA, at this point, has not determined if it will initiate remedial action to restore the aquifer in Woburn. According to one EPA representative, several options have been identified, but no decisions have been made to date. The EPA representative did not know how long the groundwater had been contaminated prior to May, 1979.

**TABLE 2 - Data compiled for Dr. Norman Telles' report to Mass. DPH
CHILDHOOD LEUKEMIA DEATHS**

<u>YEARS</u>	<u>OBSERVED</u>	<u>EXPECTED</u>	<u>SMR</u>
1949-53	1	1.3	78
1954-58	0	1.8	0
1959-63	3	2.5	120
1964-68	4	2.4	169
1969-73	1	2.0	50
1974-78	5	1.4	357
TOTAL	14	10	140

TABLE 2 - Data compiled for Dr. Norman Telles' report to Mass. DPH
KIDNEY CANCER DEATHS

<u>YEARS</u>	<u>OBSERVED</u>	<u>EXPECTED</u>	<u>SMR</u>
1949-53	2	2.7	75
1954-58	3	3.6	83
1959-63	1	4.1	24
1964-68	2	4.6	43
1969-73	8	5.2	154
1974-78	11	4.9	224
TOTAL	27	25.1	108

ERAS was not able to determine whether EPA has gained any further knowledge about the Woburn groundwater problem, since its report dated March 8, 1982.

5. SURVEY ACTIVITIES

The survey was carried out by Charles Humpstone and Leslie Nelken of ERAS, who visited the IUS facility in Woburn on May 25, 1983. They met with the following individuals: Mr. Aldo Croatti, President and Founder of IUS, Mr. John Bartlett, Vice President of Finance, Mr. Philip Pizzo, Chief Engineer, Mr. Jeffrey Bates, Legal Counsel for IUS, and Mr. John Lynch of Environmental Research and Technology, acting as a consultant to IUS. The surveyors were highly impressed with the management of IUS's operations and with the candor of the participants in this meeting. Mr. Croatti had made contact with a retired production manager regarding past waste management practices.

Ms. Nelken also met with Mr. Richard Leighton of Region I EPA. He is the EPA Coordinator for the Woburn Project.

APPENDIX A